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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,983	09/06/2002	Hooi Bin Lim	2002P13943US	9034

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EXAMINER
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MALDONADO, JULIO J

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 01/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/064,983

Applicant(s)

LIM ET AL.

Examiner

Julio J. Maldonado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: on page 4, [0017] cite, "...through line 302303..." should cite "...through line 302-303..."; on page 5, [0019] cite, "...through line 402403..." and on [0020] cite "...through line 502503...", should cite "...through line 402-403..." and "...through line 502-503...", respectively.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 8-13, 15 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. (U.S. 6,373,187 B1) in view of Roitman et al. (U.S. 6,111,356).

In reference to claims 1 and 12, Nagayama et al. (Figs.1a-2 and Figs.4a-d) in a related method to form an organic light emitting diode (OLED) teach forming a device layer (120) on a substrate (102); patterning the device layer (120) to form pillars (120a) along a first direction on the substrate (102), wherein the pillars (120a) comprise a tapered profile. and grooves between the pillars extend outside an electrode region to prevent electrical shorting; coating the substrate (102) with an organic functional material (106); and depositing a conductive layer (107) in the electrode region on the

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substrate (102), wherein the tapered profile of the pillars separate the conductive layer into first and second distinct portions (column 4, line 38 – column 7, line 47).

Nagayama et al. fail to teach coating the substrate with a solution comprising an organic functional material dissolved in a solvent, the pillars being inert to the solvent; and removing the solvent to form an organic functional layer. However, Roitman et al. (Figs.1-6) in a related method to form an OLED device teach forming tapered pillars (30) over a transparent substrate (12); coating the substrate (12) with a solution comprising an organic functional material dissolved in a solvent, the pillars (30) being inert to the solvent; and removing the solvent to form an organic functional layer (31, 32) (column 3, line 11 – column 6, line 16). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Nagayama et al. and Roitman et al. to enable the organic functional layer of Nagayama et al. to be formed.

In reference to claims 2 and 3, the combined teachings of Nagayama et al. and Roitman et al. teach providing a distance between the edge of the active region and ends of the grooves (Fig.1). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Nagayama et al. and Roitman et al. to enable an edge distance on Nagayama et al. to be provided, and furthermore to alleviate imperfections from the spin casting of the deposited device layer (column 3, line 64 – column 4, line 4). The combined teachings of Nagayama et al. and Roitman et al. fail to teach said distance is at least 300 $\mu$ m. However, the selection of the claimed range is obvious because it is a matter of determining optimum process condition by routine experimentation with a limited number of species. In re Jones, 162 USPQ 224 (CCPA

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1955)(the selection of optimum ranges within prior art general conditions is obvious) and In re Boesch, 205 USPQ 215 (CCPA 1980)(discovery of optimum value of result effective variable in a known process is obvious).

In reference to claims 4 and 13, the combined teachings of Nagayama et al. and Roitman et al. teach forming a mounting cap on the substrate to hermetically seal the OLED device (Nagayama et al., Fig.9A and column 1, lines 51 – 58).

In reference to claims 8-11 and 17-20, the combined teachings of Nagayama et al. and Roitman et al. teach wherein the device layer comprises a photosensitive layer, the photosensitive layer is patterned by exposing and developing the photosensitive device layer; wherein the photosensitive layer comprises a positive photoresist layer, wherein exposed portion of the photosensitive layer are removed during developing; wherein exposing comprises successively exposing the photosensitive layer with electrons or charged particles having different penetration depths to form pillars with the tapered profile during developing (Roitman et al., column 5, lines 11 – 48); and curing the pillars to render the pillars inert against the solvent (Roitman et al., column 3, line 64 – column 4, line 17). Therefore, it would have been obvious to combine the teachings of Nagayama et al. and Roitman et al. to enable the tapered pillars of Nagayama et al. to be formed and furthermore to use the tapered column as a shadow mask, thus reducing the number of steps (Roitman et al., column 5, lines 11 – 48).

In reference to claim 15, the combined teachings of Nagayama et al. and Roitman et al. teach wherein the substrate comprises electrodes in a second direction on a surface thereof (Nagayama et al., Figs.3a-c and Roitman, Fig.1)

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4. Claims 5-7, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. ('187 B1) in view of Roitman et al. ('356) as applied to claims 1-4, 8-13, 15 and 17-20 above, and further in view of Wolk et al. (U.S. 2001/0000744 A1).

The combined teachings of Nagayama et al. and Roitman et al. teach wherein the substrate comprises electrodes in a second direction on a surface thereof (Nagayama et al., Figs.3a-c and Roitman, Fig.1). Nagayama et al. and Roitman et al. fail to teach wherein the substrate comprises a flexible substrate and the functional organic material comprises a conjugated polymer. However, Wolk et al. (Figs.4A-C) in a related method to form OLED devices teach providing a flexible substrate (102) and a functional organic material comprising a conjugated polymer ([0085], [0098] and [0102]). Therefore, it would have been obvious to combine the teachings of Nagayama et al., Roitman et al. and Wolk et al. to enable the substrate and the functional layer of Nagayama et al. and Roitman et al. to be provided.

### ***Conclusion***


5. Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via [julio.maldonado@uspto.gov](mailto:julio.maldonado@uspto.gov). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

JMR  
1/25/2003

  
George Fourson  
Primary Examiner  
2823